

REPLY UNDER 37 C.F.R. § 1.111  
Serial No. 10/589,199  
Attorney Docket No. 102063.56904US  
Reply Dated May 25, 2011

**REMARKS**

**I. Status of the Application**

By the present Reply, the Applicants are amending claim 1. No new matter is added. Claims 1-21 are all the claims currently pending in the application. Claims 1-12 and 21 have been rejected. Claims 13-20 have been withdrawn. The present Reply addresses each point of rejection raised in the Office Action. Favorable reconsideration is respectfully requested.

**II. Claim Rejections Under 35 U.S.C. §§ 102(b) and 103(a)**

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being unpatentable over EP 0 456 931 to Horii et al. (hereinafter “Horii”). Claims 1 and 2 also stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Horii in view of U.S. Patent No. 6,524,076 to Konishi. Claims 2 and 21 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Horii in view of Konishi and U.S. Patent No. 2,856,234 to McNair et al. (hereinafter “McNair”). Claims 3-5 and 10-12 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Horii and Konishi in view of U.S. Patent No. 6,739,574 to Simon. Claims 6-9 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Horii, Konishi, and Simon in view of U.S. Patent No. 5,433,365 to Davies.

By the foregoing amendment, claim 1 has been revised to recite that the Coanda flow amplifier comprises “an electronic control unit that adjusts the flow

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cross section of the drive-flow discharge slit after assembly of the Coanda flow amplifier such that a pressure ratio between an output pressure of the drive flow that leaves the drive-flow discharge slit and an intake pressure of the drive flow that enters the drive-flow discharge slit does not exceed a critical pressure ratio” (emphasis added). Support for this amendment can be found at least in paragraphs [0009]-[0011], [0034], [0045]-[0049], and [0053] of the specification. The Applicants respectfully submit that none of the cited references, alone or in combination, teach or suggest the quoted claim features.

As discussed in the Replies dated May 13, 2010 and November 19, 2010, Horii discloses a Coanda spiral flow device. As shown in Fig. 2 of Horii, the Coanda spiral flow device includes a first unit A, a second unit B, and an outer peripheral tube unit C that partially covers the first unit A and the second unit B and couples them together (page 2, right column, lines 34-39).<sup>1</sup> The first unit A has an introducing port 1, and the second unit B has a discharge outlet 4 (page 2, right column, lines 40-45). The outer peripheral tube unit C covers an annular groove 8 in the second unit B to form a ventilation distribution chamber 10 that communicates with a compressed gas inlet port 11 (page 3, left column, lines 18-22). The first unit A, the second unit B, and the outer peripheral tube unit C are connected by threaded fastenings at coupling flanges 3 and 9 (page 3, left column, lines 23-26). By adjusting the threaded fastenings, the clearance of the

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<sup>1</sup> The Applicants note that all citations to Horii are made to EP 0 456 931 A1.

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Coanda slit 5 through which compressed gas is fed can be set to a specified gap (page 3, left column, lines 26-29).

However, Horii does not teach or suggest that the flow device includes “an electronic control unit that adjusts the flow cross section of the drive-flow discharge slit after assembly of the Coanda flow amplifier such that a pressure ratio between an output pressure of the drive flow that leaves the drive-flow discharge slit and an intake pressure of the drive flow that enters the drive-flow discharge slit does not exceed a critical pressure ratio,” as recited in amended claim 1. Instead, as discussed in the Reply dated November 19, 2010, the clearance of the Coanda slit 5 is set by manually adjusting the threaded fastenings. Although the details of the adjustment are not explicitly discussed in Horii, Fig. 1 appears to show that the clearance of the Coanda slit 5 is set by physically turning the screws near the coupling flanges 3 and 9. Therefore, the clearance of the Coanda slit 5 cannot be adjusted by an electronic control unit, as recited in claim 1.

Even assuming *arguendo* that it would have been obvious to modify Horii to use an electronic control unit to adjust the clearance of the Coanda slit 5, Horii discloses that such an adjustment is made only during assembly of the Coanda spiral flow unit, and not after assembly of the Coanda spiral flow unit as recited in claim 1. Horii discloses that it was previously difficult to control the slit clearance to an accuracy on the order of 0.01 mm during an assembly operation at a job site (page 2, left column, lines 43-50). Accordingly, a purpose of Horii is

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to design the Coanda spiral flow unit such that the assembled Coanda spiral flow unit has a particular slit clearance with a high precision (page 2, left column, lines 51-55; page 3, left column, lines 11-14). Specifically, the first unit A, the second unit B, and the outer peripheral tube unit C of the Coanda spiral flow unit of Horii are designed *in advance* to form a Coanda spiral flow unit with a Coanda slit 5 having a specified slit clearance with a high precision (page 3, left column, lines 11-13 and 31-34). For example, the components of the Coanda spiral flow unit may be designed such that the Coanda slit 5 has a clearance of 0.18 mm (page 3, right column, lines 5-13).

In addition, Horii teaches away from adjusting the clearance of the Coanda slit 5 after assembly of the Coanda spiral flow unit. As discussed above, the components of the Coanda spiral flow unit are designed such that the Coanda slit 5 has a specific slit clearance once the Coanda spiral flow unit is assembled (page 3, left column, lines 11-14 and 31-34). In order to adjust the slit clearance, it would be necessary to redesign the components of the Coanda spiral flow unit, and then reassemble the Coanda spiral flow unit to have the new slit clearance. Instead, the Coanda spiral flow unit of Horii is designed to maintain the specific clearance of the Coanda slit 5 after assembly.

Further, Horii does not disclose that the clearance of the Coanda slit 5 is adjusted “such that a pressure ratio between an output pressure of the drive flow that leaves the drive-flow discharge slit and an intake pressure of the drive flow that enters the drive-flow discharge slit does not exceed a critical pressure ratio,”

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as recited in claim 1. In rejecting claim 1, the Office Action cites MPEP § 2114 and states that claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. The Office Action also states that “[r]egarding the claim recitation intake pressure does not exceed a critical pressure, it is noted that functionality of the slit whether operated manually or electronically is to maintain the required pressure” (Office Action, page 5).

Preliminarily, the Applicants note that the citation of the claim language in the Office Action is inaccurate. Claim 1 does not recite that the “intake pressure does not exceed a critical pressure.” Instead, claim 1 recites that a pressure ratio between an output pressure and an intake pressure does not exceed a critical pressure ratio. Further, the Applicants note that any functional claim limitations must be given patentable weight. For example, MPEP § 2173.05(g) states that “[a] functional limitation must be evaluated and considered, just like any other limitation of the claim, for what is fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used” (emphasis added). The Applicants respectfully submit that the recited pressure ratio further defines the structure of the Coanda flow amplifier, because it affects the flow cross section of the drive-flow discharge slit. Therefore, this limitation should be evaluated, considered, and given patentable weight.

In addition, the Applicants submit that McNair, Simon, and Davies also fail to disclose teachings that are missing in Horii and Konishi. For example, McNair, Simon, and Davies do not disclose “an electronic control unit that

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adjusts the flow cross section of the drive-flow discharge slit after assembly of the Coanda flow amplifier such that a pressure ratio between an output pressure of the drive flow that leaves the drive-flow discharge slit and an intake pressure of the drive flow that enters the drive-flow discharge slit does not exceed a critical pressure ratio,” as recited in claim 1.

Accordingly, the Applicants respectfully submit that claim 1 is patentable over Horii, Konishi, McNair, Simon, and Davies at least by virtue of the aforementioned differences, as well as its additionally recited features. Further, claims 2-12 and 21 are patentable over Horii, Konishi, McNair, Simon, and Davies at least by virtue of their dependencies on claim 1, as well as their additionally recited features.

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### **III. Conclusion**

If there are any questions regarding this response or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323, Docket No. 102063.56904US.

Respectfully submitted,

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